In the Claims

Applicant presents a complete claim set with insertions indicated by underlining and deletions indicated by strikethrough and/or double bracketing.

Please amend pending claims 1, 12, 14, 17, 27 and 31-34 as noted below.

Please add new claims 35-39 as shown below.

1. (Currently amended) An array of photodiodes made of regions of a second conductivity type formed in a semiconductive region of a first conductivity type, divided into three interleaved sub-arrays, each sub-array corresponding to a respective color of light, all photodiodes of a respective sub-array being coated with a same interference filter including at least one insulating layer of determined thickness coated with at least one conductive layer, a combined thickness of the at least one insulating layer and the at least one conductive layer being different for each sub-array, the determined thickness of said at least one insulating layer and said at least one conductive layer coating the respective sub-array determining the respective color of light that is interferentially filtered and provided to the respective sub-array, wherein the determined thickness of said at least one insulating layer is proportional to a wavelength of the color of light that is interferentially filtered, wherein said at least one conductive layer is electrically connected to the semiconductive region of the first conductivity type.

2. (Original) The array of photodiodes of claim 1, wherein the electric connection is indirect.

3. (Original) The array of photodiodes of claim 1, wherein the semiconductor substrate is a single-crystal silicon substrate, and the interference filter includes a silicon oxide layer formed above the substrate and a conductive polysilicon layer formed above the silicon oxide layer.

4. (Previously presented) The array of photodiodes of claim 1, wherein the semiconductive region of the first conductivity type comprises a semiconductor substrate made of single-crystal silicon.

5. (Original) The array of photodiodes of claim 1, wherein said at least one insulating layer comprises a silicon oxide layer.

6. (Previously presented) The array of photodiodes of claim 1, wherein said at least one conductive layer comprises a polysilicon layer.

7. (Previously presented) The array of photodiodes of claim 1, further comprising a silicon nitride layer over said at least one conductive layer.

8. (Previously presented) The array of photodiodes of claim 1, wherein said semiconductive region of the first conductivity type comprises a semiconductor substrate made of single-crystal silicon, said at least one insulating layer comprises a silicon oxide layer, and said at least one conductive layer comprises a polysilicon layer.

9. (Previously presented) The array of photodiodes of claim 8, further comprising a silicon nitride layer over said at least one conductive layer.

10. (Previously presented) The array of photodiodes of claim 9, wherein said single-crystal silicon layer and said polysilicon layer have a high refraction coefficient on the order of 4, while said silicon oxide layer and silicon nitride layer have a lower refraction coefficient, on the order of 1.5.

11. (Previously presented) The array of photodiodes of claim 1, wherein said at least one conductive layer is connected to said semiconductive region of the first conductivity type at a heavily doped P-type region thereof.

12. (Currently amended) A photodiode comprising:

a semiconductor substrate of a first conductivity type;

a semiconductive region of a second conductivity type formed in said semiconductor substrate;

a multilayer interference filter disposed over said semiconductive region and including;

at least one insulating layer having a predetermined thickness, and

a conductive layer disposed over said at least one insulating layer,

wherein said conductive layer includes a conductive portion that electrically connects said conductive layer to said semiconductor substrate of the first conductivity type, and

wherein the predetermined thickness of said at least one insulating layer, in combination with said conductive layer, is adapted to interferentially filter a particular wavelength of light; and

wherein the predetermined thickness of said at least one insulating layer is proportional to the particular wavelength of light.

13. (Original) The photodiode of claim 12, wherein said semiconductor substrate comprises a single-crystal silicon.

14. (Currently amended) The photodiode of claim 13, wherein said at least one ~~said~~ insulating layer comprises a silicon oxide layer.

15. (Original) The photodiode of claim 14, wherein said conductive layer comprises a polysilicon layer.

16. (Original) The photodiode of claim 15, further comprising a silicon nitride layer over said conductive layer.

17. (Currently amended) A photodiode comprising:

a semiconductor substrate of a first conductivity type;

a semiconductive region of a second conductivity type formed in said semiconductor substrate;

a multilayer interference filter disposed over said semiconductive region and including;

at least one insulating layer having a predetermined thickness,

a conductive layer disposed over said at least one insulating layer, and

means defining a conductive portion that electrically connects said conductive layer to said semiconductor substrate of the first conductivity type,

wherein the predetermined thickness of said at least one insulating layer, in combination with said conductive layer, is adapted to interferentially filter a particular wavelength of light; and

wherein the predetermined thickness of said at least one insulating layer is proportional to the particular wavelength of light.

18. (Original) The photodiode of claim 17, further including means defining a heavily doped region of said semiconductor substrate to which said conductive portion couples.

19-26. (Canceled)

27. (Currently amended) A photodiode comprising:

a semiconductor substrate of a first conductivity type;

a semiconductive region of a second conductivity type formed in said semiconductor substrate;

a multilayer interference filter disposed over said semiconductive region and including;

at least one insulating layer having a predetermined thickness, and

a conductive layer disposed over said at least one insulating layer,

said semiconductor substrate defining a well formed in a base substrate of the second conductivity type, said conductive layer being electrically connected to said base substrate,

wherein the predetermined thickness of said at least one insulating layer, in combination with said conductive layer, is adapted to interferentially filter a particular wavelength of light; and

wherein the predetermined thickness of said at least one insulating layer is proportional to the particular wavelength of light.

28. (Previously presented) The array of photodiodes of claim 1, wherein the at least one insulating layer includes a first insulating layer and a second insulating layer disposed below the first insulating layer, the first insulating layer extending across three photodiodes each in a different one of the three interleaved sub-arrays, and the second insulating layer extending across at least two photodiodes of the three photodiodes, wherein said at least one conductive layer extends across each of the three photodiodes above the first insulating layer.

29. (Previously presented) The array of photodiodes of claim 28, wherein the at least one insulating layer further includes a third insulating layer, disposed below the second insulating layer, that extends across only one of the three photodiodes.

30. (Previously presented) The array of photodiodes of claim 1, wherein said at least one insulating layer extends across three photodiodes each in a different one of the three interleaved sub-arrays, and wherein the determined thickness of said at least one insulating layer above each photodiode of the three photodiodes has a different thickness to interferentially filter a different wavelength of light.

31. (Currently amended) The array of photodiodes of claim 1, wherein each of the photodiodes of each respective sub-array has a capacitance, and wherein said at least one conductive layer of the interference filter coating the respective sub-array forms a capacitance in parallel to the ~~increases the effective~~ capacitance of each of the photodiodes of the respective sub-array.

32. (Currently amended) The photodiode of claim 12, wherein the photodiode has a capacitance, and wherein the electrical connection of said conductive layer to said semiconductor substrate forms a capacitance in parallel to the ~~increases the effective~~ capacitance of the photodiode.

33. (Currently amended) The photodiode of claim 17, wherein the photodiode has a capacitance, and wherein said means forms a capacitance in parallel with the ~~increases the effective~~ capacitance of the photodiode by electrically connecting said conductive layer to said semiconductor substrate.

34. (Currently amended) The photodiode of claim 27, wherein the photodiode has a capacitance, and wherein the electrical connection of said conductive layer to said base substrate forms a capacitance in parallel to the ~~increases the effective~~ capacitance of the photodiode.

35. (New) The array of photodiodes of claim 1, wherein a thickness of said at least one conductive layer is substantially the same for each sub-array.

36. (New) The array of photodiodes of claim 1, wherein the determined thickness of said at least one insulating layer is proportional to one-half of the wavelength of the color of light that is interferentially filtered.

37. (New) The photodiode of claim 12, wherein the predetermined thickness of said at least one insulating layer is proportional to one-half the particular wavelength of light.

38. (New) The photodiode of claim 17, wherein the predetermined thickness of said at least one insulating layer is proportional to one-half the particular wavelength of light.

39. (New) The photodiode of claim 27, wherein the predetermined thickness of said at least one insulating layer is proportional to one-half the particular wavelength of light.